Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~An RNA~~ A nucleic acid aptamer ~~that selectively binds a coagulation pathway factor, the RNA aptamer having a dissociation constant for the coagulation pathway factor of about 20 nanomolar (nM) or less~~, to the coagulation pathway factor IX or IXa.

2. (Currently Amended) The ~~RNA~~ aptamer of claim 1, wherein the coagulation pathway factor is ~~selected from the group consisting of prothrombin, thrombin,~~ IX~~, IXa, X, Xa, VII, VIIa and combinations thereof~~.

3. (Currently Amended) The ~~RNA~~ aptamer of claim ~~2~~1, wherein the coagulation pathway factor is IXa~~, and the RNA aptamer further comprises a consensus sequence comprising AUA~~.

4. (Currently Amended) The ~~RNA~~ aptamer of claim [[3]]1, ~~wherein the~~ having a dissociation constant ~~ranges from about 100 pm to about 10 nM~~ of about 20 nanomolar (nM) or less.

5. (Currently Amended) The ~~RNA~~ aptamer of claim 4, wherein the dissociation constant ranges from about 400 pM to about 10 nM.

6. (Currently Amended) The ~~RNA~~ aptamer of claim [[2]] 4, wherein ~~the coagulation pathway factor is VIIa, and~~ the dissociation constant ranges from about 100 pm to about 10 nM.

7-11. (Canceled)

12. (Currently Amended) The ~~RNA~~ aptamer of claim 1, ~~further comprising~~ which comprises at least one modified nucleotide.

13. (Currently Amended) An ~~RNA~~ aptamer comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs:1-[[47]]22, or a truncate thereof.

14. (Currently Amended) The ~~RNA~~ aptamer of claim 13, wherein the sequence ~~truncate~~ is selected from the group consisting of SEQ ID NO:70, SEQ ID NO:3, SEQ ID NO:17, and ~~or~~ SEQ ID NO:71 or a truncate thereof.

15. (Currently Amended) ~~An RNA~~ The aptamer of claim 13, wherein the ~~that selectively binds thrombin, the aptamer comprising a~~ nucleotide sequence is SEQ ID NO: 3 or SEQ ID NO: 70 ~~selected from the group consisting of SEQ ID NOs:50-56, and SEQ ID NOs:48 and 49 flanking the nucleotide sequence on the 5' and 3' ends, respectively; or a truncate thereof~~.

16. (Currently Amended) The ~~RNA~~ aptamer of claim [[15]] 13, wherein the sequence ~~truncate~~ is SEQ ID NO:[[57]] 3 OR SEQ ID NO: 71 or a truncate thereof.

17. (Currently Amended) ~~An RNA~~ The aptamer of claim 13, wherein the sequence ~~truncate~~ is SEQ ID NO:3 or SEQ ID NO: 17 or a truncate thereof ~~that selectively binds thrombin, the aptamer comprising the sequence AACAA~~.

18. (Canceled)

19. (Canceled)

20. (Currently Amended) A pharmaceutical composition comprising a therapeutically effective amount of ~~an RNA aptamer of claim 1~~ a nucleic acid aptamer to the coagulation pathway factor IX or IXa, ~~and~~ in a pharmaceutically acceptable diluent or vehicle.

21. (Currently Amended) A method of modulating the biological activity of a coagulation pathway factor, the method comprising: (a) administering to a warm blooded vertebrate host having coagulation pathway facots IX or IXa or the equivalent in need thereof an effective amount of ~~an RNA aptamer of claim 1~~ a nucleic acid aptamer to the coagulation pathway factor IX or IXa; and (b) modulating the biological activity of the coagulation pathway factor in the warm-blooded vertebrate through the ~~administering~~ administration of the ~~RNA~~ aptamer in step (a).

22. (Currently Amended) The method of claim 21, wherein the ~~administering~~ administration is ~~selected from the group consisting of~~ intravenous administration, intrasynovial administration, transdermal administration, intramuscular administration, subcutaneous administration, intraperitoneal administration, or ~~and~~ topical administration to a blood vessel.

23. (Original) The method of claim 21, wherein the vertebrate is a mammal.

24. (Currently Amended) A method of treating cardiovascular disease in a warm blooded vertebrate host, the method comprising administering an effective amount of ~~an RNA aptamer of claim 1~~ a nucleic acid aptamer to the coagulation pathway factor IX or IXa to a vertebrate subject suffering from cardiovascular disease, whereby cardiovascular disease in the vertebrate subject is treated.

25. (Currently Amended) The method of claim 24, wherein the ~~administering~~ administration is ~~selected from the group consisting of~~ intravenous administration, intrasynovial

administration, transdermal administration, intramuscular administration, subcutaneous administration, intraperitoneal administration, or ~~and~~ topical administration to a blood vessel.

26. (Original) The method of claim 24, wherein the vertebrate is a mammal.

27-67. (Canceled)

68. (New) The aptamer of claim 1 comprising at least one ribonucleotide.

69. (New) The aptamer of claim 1 comprising at least one deoxyribonucleotide.

70. (New) The aptamer of claim 1 comprising a single stranded nucleic acid.

71. (New) The aptamer of claim 1 comprising a double stranded nucleic acid.

72. (New) The aptamer of claim 12, wherein the modified nucleotide is a modified ribonucleotide.

73. (New) The aptamer of claim 72, wherein the aptamer comprises at least one 2'-modified ribonucleotide.

74. (New) The aptamer of claim 12, wherein the aptamer comprises at least one 2'-halo-modified nucleotide.

75. (New) The aptamer of claim 12, wherein the aptamer comprises at least one 2'-fluoro-modified nucleotide.

76. (New) The aptamer of claim 12, wherein the aptamer comprises at least one 2'-O-alkyl-modified nucleotide.

77. (New) The aptamer of claim 12, wherein the aptamer comprises at least one 2'-methoxy-modified nucleotide.

78. (New) The aptamer of claim 12 wherein at least one cytidine is 2'-deoxy-2'-fluorocytidine.

79. (New) The aptamer of claim 12 wherein at least one uridine is 2'-deoxy-2'-fluorouridine.

80. (New) The aptamer of claim 12 wherein all uridines are 2'-deoxy-2'-fluorouridine.

81. (New) The aptamer of claim 1, that comprises a 3' chain terminator.

82. (New) The aptamer of claim 1, that comprises about 15 to 100 bases

83. (New) The aptamer of claim 1, that has less than about 100 bases.

84. (New) The aptamer of claim 1, that has less than about 40 bases.

85. (New) The aptamer of claim 1, that comprises a covalently linked carrier.

86. (New) The aptamer of claim 85 wherein the carrier is a soluble polymer.

87. (New) The aptamer of claim 85 wherein the carrier is a biodegradable polymer.

88. (New) The aptamer of claim 85 wherein the carrier is polyethylene glycol.

89. (New) The aptamer of claim 1 additionally comprising covalently linked cholesterol.

90. (New) The aptamer of claim 1, wherein the aptamer comprises a consensus sequence comprising AUA.

91. (New) The aptamer of claim 1 comprising at least about 5 nucleotides at a 5' end of the aptamer that form base pairs with at least about 5 nucleotides at a 3' end of the aptamer.

92. (New) The aptamer of claim 3, wherein the aptamer has a dissociation constant is about 20 nM or less.

93. (New) The aptamer of claim 3, wherein the aptamer has a dissociation constant ranging from about 400 pm to about 10nM.

94. (New) The aptamer of claim 3, wherein the aptamer has a dissociation constant ranging from about 100 pm to about 10nM.

95. (New) The aptamer of claim 2, wherein the aptamer has a dissociation constant for IX of about 20 nM or less.

96. (New) The aptamer of claim 2, wherein the aptamer has a dissociation constant ranging from about 400 pm to about 10 nM.

97. (New) The aptamer of claim 2, wherein the aptamer has a dissociation constant ranging from about 100pm to about 10nM.

98. (New) The aptamer of claim 2 or 3, wherein the nucleic acid comprises ribonucleic acids.

99. (New) The aptamer of claim 2 or 3, wherein the nucleic acid comprises deoxyribonucleic acids.

100. (New) The aptamer of claim 2 or 3, wherein the aptamer comprises a single stranded nucleic acid.

101. (New) The aptamer of claim 2 or 3, wherein the aptamer comprises a double stranded nucleic acid.

102. (New) The aptamer of claim 2 or 3, that has at least one modified nucleotide.

103. (New) The aptamer of claim 102, wherein the aptamer comprises at least one 2'-modified ribonucleotide.

104. (New) The aptamer of claim 102, wherein the aptamer comprises at least one 2'-halo modified nucleotide.

105. (New) The aptamer of claim 102, wherein the aptamer comprises at least one 2'-fluoro modified nucleotide.

106. (New) The aptamer of claim 102, wherein the aptamer comprises at least one 2'-O-alkyl modified nucleotide.

107. (New) The aptamer of claim 102 wherein at least one cytidine is 2'-deoxy-2' fluorocytidine.

108. (New) The aptamer of claim 102 wherein at least one uridine is 2'-deoxy-2'-fluorouridine.

109. (New) The aptamer of claim 102 wherein all uridines are 2'-deoxy-2'-fluorouridine.

110. (New) The aptamer of claim 2 or 3, that comprises a 3' chain terminator.

111. (New) The aptamer of claim 2 or 3, that comprises a covalently linked carrier.

112. (New) The aptamer of claim 111 wherein the carrier is a soluble polymer.

113. (New) The aptamer of claim 111 wherein the carrier is a biodegradable polymer.

114. (New) The aptamer of claim 111 wherein the carrier is polyethylene glycol.

115. (New) The aptamer of claim 2 or 3 additionally comprising covalently linked cholesterol.

116. (New) The aptamer of claim 2 or 3, wherein the aptamer comprises a consensus sequence comprising AUA.

117. (New) The aptamer of claim 2 or 3 comprising at least about 5 nucleotides at a 5' end of the aptamer that form base pairs with at least about 5 nucleotides at a 3' end of the aptamer.

118. (New) The aptamer of claim 13, comprising SEQ. ID. NO: 3.

119. (New) The pharmaceutical composition of claim 20 wherein the composition is in a unit dose.

120. (New) The pharmaceutical composition of claim 20, wherein the aptamer comprises a ribonucleotide.

121. (New) The method of claim 21, wherein the aptamer comprises at least one ribonucleotide.

122. (New) The method of claim 22, wherein the aptamer comprises at least one deoxyribonucleotide.

123. (New) The method of claim 21, wherein the aptamer comprises at least one modified nucleotide.

124. (New) The method of claim 24, wherein the aptamer comprises at least one ribonucleotide.

125. (New) The method of claim 24, wherein the aptamer comprises at least one deoxyribonucleotide.

126. (New) The method of claim 24, wherein the aptamer comprises at least one modified nucleotide.

127. (New) The method of claim 23 wherein the mammal is a human.

128. (New) The method of claim 21 wherein the vertebrate is a mammal.

129. (New) The method of claim 128 wherein the mammal is a human.

130. (New) The method of claim 24, wherein the administration is by coating a blood vessel tissue with the aptamer.

131. (New) The method of claim 24 wherein administration is via a catheter.

132. (New) The method of claim 25 wherein the administration is intravenous administration.

133. (New) The method of claim 25 wherein the administration is subcutaneous administration.

134. (New) The method of claim 25 wherein the administration is intrasynovial administration.

135. (New) The method of claim 21, wherein the administration is by coating a blood vessel tissue with the aptamer.

136. (New) The method of claim 21 wherein administration is via a catheter.

137. (New) The method of claim 22 wherein the administration is intravenous administration.

138. (New) The method of claim 22 wherein the administration is subcutaneous administration.

139. (New) The method of claim 22 wherein the administration is intrasynovial administration.

140. (New) The method of claim 21 wherein the host is in need of treatment for atherosclerosis.

141. (New) The method of claim 21 wherein the host is in need of treatment for thromboses.

142. (New) The method of claim 21 wherein the host is in need of treatment for hypertension.

143. (New) The method of claim 21 wherein the host is in need of treatment for cardiac infarction.

144. (New) The method of claim 24, wherein the cardiovascular disease is a disease in which thrombisis plays a role.

145. (New) The method of claim 24, wherein the cardiovascular disease is atherosclerosis.

146. (New) The method of claim 24, wherein the cardiovascular disease is thromboses.

147. (New) The method of claim 24, wherein the cardiovascular disease is hypertension.

148. (New) The method of claim 24, wherein the cardiovascular disease is cardiac infarction.

149. (New) The method of claim 24 comprising contacting factor IXa with an aptamer to factor IXa.

150. (New) The method of claim 21, wherein the aptamer is to IXa.

151. (New) The method of claim 24, wherein the aptamer is to IX.

152. (New) The method of claim 21, wherein the aptamer is to IX.